

**REMARKS**

Claims 1-23 are pending in this application. Claims 1, 2, 3, 6, 11, 12 and 21-23 are being amended herein. Claims 1, 11, 21-23 are the base claims and have been amended to further clarify the invention. Dependent claims 2, 3, 6 and 12 have been amended to reflect the changes in their respective base claims. Support for these claim amendments can be found at least on page 1, lines 15-17, page 2, lines 24-27, and page 5, lines 1-5 and 22-28, of the specification as originally filed. No new matter is introduced by way of these amendments.

**Regarding 35 U.S.C. 101 rejections**

Claims 1-10 and 11-20 have been rejected under 35 U.S.C. § 101. In support of this rejection, the Office Action states the claimed invention is directed to non-statutory subject matter.

With regard to base Claim 1, the Office Action states, “Determining modifications to a proposed system is not a tangible result. Instead, it’s a thought or a process within a computer.” Applicant has amended base Claim 1 to more distinctly point out a tangible result. In particular, base Claim 1 now distinctly recites the tangible result of an information system architecture design (“*determining modifications to the proposed information system architecture, resulting in an information system architecture design, a description of the resulting information system architecture design being output.*”) Support for this claim amendment can be found at least on page 2, lines 24-27 and page 5 lines 22-28 of the specification as originally filed. Applicant believes base Claim 1, as now amended, has a tangible result and as such overcomes the rejection under 35 U.S.C. 101. Since Claims 2-10 depend from base Claim 1, these dependent claims inherit this limitation. Accordingly, the rejection under 35 U.S.C. § 101 of Claims 1-10 is believed to be overcome.

With regard to base Claim 11, the Office Action states, “The system of claim 11 includes a design (non-functional descriptive material), a series of modules (functional descriptive material) and an engine (functional descriptive material). As such, the system of claim 11 is directed to a combination of functional and non functional descriptive material, lacking any hardware necessary to realize the functionality of the modules and engine.” Applicant has

amended base Claim 11 to define hardware necessary to realize the functionality of the modules and engine. More specifically, base Claim 11 as amended now includes, “*in a digital processor.*” Support for this claim amendment can be found at least in U.S. Patent No. 6,311,144, col. 3, lines 51-54, which is incorporated by reference (as Application No. 09/127,191) on page 1, lines 7-11 of the specification as originally filed. Applicant believes Claim 11, as now amended, overcomes the rejection under 35 U.S.C. 101. Since Claims 12-20 depend from base Claim 11, these dependent claims inherit this limitation. Accordingly, the rejection under 35 U.S.C. § 101 of Claims 11-20 is believed to be overcome.

Regarding 35 U.S.C. 112, paragraph 1, rejections

Claims 1-10, 11-20, 21, 22 and 23 have been rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims are purported to contain subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. In particular, the Office Action on page 6 states the following:

“...claim 1 introduces the limitation of ‘modeling being [done] in a manner uninfluenced by a prior existing related system architecture and measured performance thereof’. This limitation is regarded as new subject matter as the original specification submitted does not contain this disclosure. Further, an objection is raised regarding lack of antecedent basis for the limitation above as it is not present in the specification. Further, contrary to the above limitation support is found that new proposed architectural model is influenced by the existing system which contains the existing applications and business design processes...”

In an effort to expedite prosecution, Applicant has amended base Claim 1 (“... said constructing and modeling being in a manner free of measuring and collecting data of a prior existing information system and measured performance thereof . . .”) to further clarify the invention. Support for this claim amendment is found throughout the Specification such as at page 3, line 19 - page 4, line 16 as originally filed.

Further, MPEP § 2173.05(i) allows a claim limitation to exclude characteristics of the prior art, and does not require a literal basis in the specification for the negating limitation. MPEP § 2163 I.B. allows newly added claim limitations to be supported in the specification through express, explicit or inherent disclosure which is the case here. In the case at hand, the specification on page 4, lines 8-16, as originally filed, discloses the following:

“The initial model is constructed by...mapping...available business applications to corresponding business processes defined in the business process design...after the initial model is constructed, embodiments of the automated system iterates through sequences of performance modeling, comparison, and architecture modification until the modeled metrics satisfy the business requirements of the business process design. Once the business requirements are satisfied, a detailed set of specifications describing the system architecture are derived from the resulting model.”

Using MPEP § 2163 I.B. as a guide, the description of the present invention does not include measuring and collecting data of any prior existing information system and especially does not do so in constructing a multi-layer mathematical model of a proposed information system architecture and/or in modeling performance metrics of each model layer. The claims as now amended make clear that the steps of constructing a model and modeling performance are without measuring and collecting data of a prior existing system. Therefore, the rejection of Claim 1 under 35 U.S.C. 112, paragraph 1 is believed to be improper in view of MPEP § 2163 I.B. and the foregoing amendments. Claims 11 and 21-23 have similar limitations. Claims 2-10 depend from base Claim 1 and Claims 12-20 depend from base Claim 11. Accordingly, Applicant respectfully submits that the rejection of Claims 1-10, 11-20, 21, 22 and 23 under 35 U.S.C. 112, paragraph 1 is believed to be overcome.

#### Regarding 35 U.S.C. 103 rejections

Claims 1-5 and 21-23 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over EUROEXPERT - Best Practices: French Social Security - UNEDIC dated 1992 (hereafter “EUROEXPERT”) in view of IEEE Article “An Introduction to Six Sigma with a Design Example” by Robert White dated 1992 (hereafter “IEEE Article”).

Briefly, the present invention is directed to the top-down, from "scratch" designing of the architecture of an information system (system architecture). That is, the present invention provides a software tool for enabling a system engineer to create an initial system architecture design and to test (more at predict) performance of that design. Further the present invention performs "what-if" scenarios and determines changes in performance in variations of the proposed design (emphasis on not an existing design).

In a preferred embodiment the present invention software tool employs a multi-layer mathematical model of the proposed information system architecture. The mathematical model is based on a business process design which describes business processes and defines business requirements for each business process. The multi-layer mathematical model includes a business layer, an application layer and a technology layer. The present invention provides model performance metrics at each of these layers and compares model performance metrics with the business requirements. Where unacceptable performance metrics exist, the present invention enables the proposed information system architecture to be modified and updates the performance metrics at each layer. If the performance metrics satisfy the business requirements, then the present invention provides an output description of the proposed information system architecture.

The EUROEXPERT cited reference is directed to analyzing and upgrading an existing system in a bottom-up approach which is in stark contrast to the top-down designing of a proposed system architecture in the present invention. That is, EUROEXPERT analyzes measured performance of an existing system. In viewing the ordinary flow of the EUROEXPERT process, first data and measurements are collected and then a model is formed. In contrast, Applicant's present invention as now claimed first forms a model and then generates for analysis predicted or projected performance metrics of a proposed (not in existence) information system architecture. In neither model construction (formal) nor performance modeling steps does the present invention measure and collect data of an existing information system.

With respect to the cited IEEE article by Robert White, the article is directed to industrial design for electronic circuits in the manufacturing of circuit boards. This industrial design for electronics is in contrast to the information system architecture designing of the present

invention. White is directed to a discrete event approach whereas the present invention considers the continuous service of a proposed information system architecture and predicts performance thereof. That is, White is incapable of considering continuous service and predicting performance thereof as claimed by the present invention and as such is patentably distinguished.

Further, White discloses using Six Sigma to eliminate defects from one's product (White, p. 28, col. 1, last ¶). White goes on to say that, in order to be effective, a manufacturer needs to achieve quality products (White, p. 28, col. 2, second full ¶). In order to achieve an effective level of quality, it requires a capital investment in training, in process equipment, in developing partnerships with customers and suppliers (White, p. 28, col. 2, third full ¶). Furthermore, a company has to "make the commitment at all levels to a total quality management program. It takes time, years even, to fully implement." In contrast, the present invention as claimed uses "modeled performance metrics [in comparison] with the set of business requirements for each business process..." The performance metrics are done without the need for training, process equipment or developing partnerships with customers and suppliers. Rather, the present invention as claimed is computer implemented. That is, White's article is a "way of doing business" rather than a computer implemented process and system.

Thus, White applied to EUROEXPERT at best provides a six sigma way of doing business incorporating re-designing/re-engineering of a subject existing information system. No combination of White and EUROEXPERT imply, suggest or make obvious the claimed process or system for designing an information system architecture "by constructing a multi-layer mathematical model of a proposed information system architecture" and "modeling performance metrics for each layer of the multi-layer model of the proposed information system architecture including modeling continuous service of the proposed information system architecture" as now claimed in each of the amended base Claims 1, 11, 21, 22 and 23.

The foregoing patentable distinctions of the present invention over the cited references are found in now amended base Claims 1, 11 and 21-23 with the language, or similar language, of

"A computer implemented method for designing a model based information system architecture, the information system architecture being the architecture of an information system which includes a number of interconnected hardware and

software components implementing one or more business solutions, comprising . . .  
a multi-layer mathematical model of a proposed information system architecture  
. . . the multi-layer mathematical model being implemented on a computer and the  
layers of the multi-layer model comprising a business layer, an application layer  
and a technology layer, the business layer, application layer and technology layer  
having different data than each other . . . modeling performance metrics for each  
layer of the multi-layer model of the proposed information system architecture  
including continuous service of the proposed information system architecture,  
said constructing the multi-layer model and modeling performance being in a  
manner free of measuring and collecting data of a prior existing information  
system and measured performance thereof..."

Claims 2-5 are dependent on Claim 1 and thus inherit this claim language. Thus, the § 103(a) rejection of Claims 1-5 and 21-23 in view of EUROEXPERT and White is believed to be overcome. Acceptance is respectfully requested.

Claims 6-20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over EUROEXPERT in view of IEEE Article, further in view of Hartley (U.S. Patent No. 6,532,465).

Hartley provides a system which employs various objects that process data at different levels of abstraction between a client node and a base tier. For example, presentation objects in the uppermost tier correspond to one or more business objects that are highly specific to a client's implementation. These objects are focused toward supporting user interfaces (existing system), report writers, etc. Mapping is provided between the presentation objects and business objects located on an intermediate tier. The business objects contain key abstracted business logic supported by the particular implementation of the system. (Hartley, Col. 5, lines 12-32; Abstract; Fig. 4.) In this way, Hartley uses business objects to support user interfaces, e.g., modeling by measuring data of a prior existing system. Further, these business objects relate to a particular implementation of a system, i.e., existing system. However, Hartley does not disclose modeling performance in a manner free of measuring and collecting data of a prior existing information system and measured performance thereof as claimed in the present invention.

Therefore, Hartley does not add to EUROEXPERT and IEEE Article the missing claim feature of “*said constructing the multi-layer model and modeling performance being in a manner free of measuring and collecting data of a prior existing information system and measured performance thereof*” as claimed in amended base Claim 1.

Thus, no combination of Hartley, EUROEXPERT and/or IEEE Article imply, suggest or make obvious the claimed process or system as claimed in base Claim 1. Base Claim 11 has similar limitations. Claims 6-10 depend on base Claim 1 and thus inherit these claim limitations. Likewise, Claims 12-20 are dependent from base Claim 11 and thus inherit these claim limitations. Accordingly, the § 103 rejection of Claims 6-20 as being unpatentable over EUROEXPERT in view of IEEE Article, further in view of Hartley is believed to be overcome. Acceptance is respectfully requested.

**CONCLUSION**

In view of the above amendments and remarks, it is believed that all claims (Claims 1-23) are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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